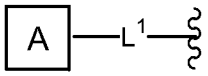
**Amendments to the Claims**

This listing of claims will replace all prior versions, and listing, of claims in the application.

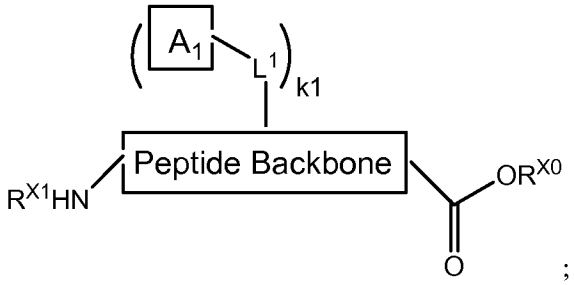
1. **(Original)** A method for preparing a polyfunctionalized peptide comprising a peptidic backbone made up of four or more amino acids wherein two or more non-adjacent amino acids are independently substituted with a moiety having the structure:




with the proviso that the peptide sequence between any two consecutive, non-adjacent, amino acids bearing a A-$L^1$- moiety comprises at least one cysteine residue;

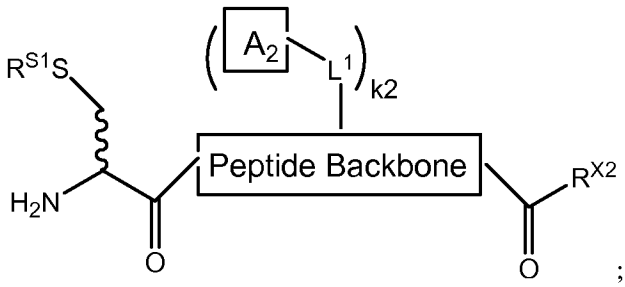
wherein the method comprises a step of:

reacting a peptide acyl donor comprising a peptidic backbone made up of two or more amino acids wherein said peptide acyl donor has the structure:




;

with a peptide amine acceptor having the structure:




;

under suitable conditions to effect ligation;

wherein k1 and k2 are independently integers between 1 and about 20;

each occurrence of A, $A_1$ and $A_2$ is independently an aliphatic, heteroaliphatic, aromatic, heteroaromatic, aryl, heteroaryl or a pharmaceutically useful group or entity;

$R^{S1}$ is a sulfide protecting group;

$R^{X0}$ is a group such that the moiety $-C(=O)OR^{X0}$ can be made to undergo ligation with the peptide amine acceptor;

each occurrence of $L^1$ is independently a substituted or unsubstituted, linear or branched, cyclic or acyclic, saturated or unsaturated aliphatic or heteroaliphatic moiety;

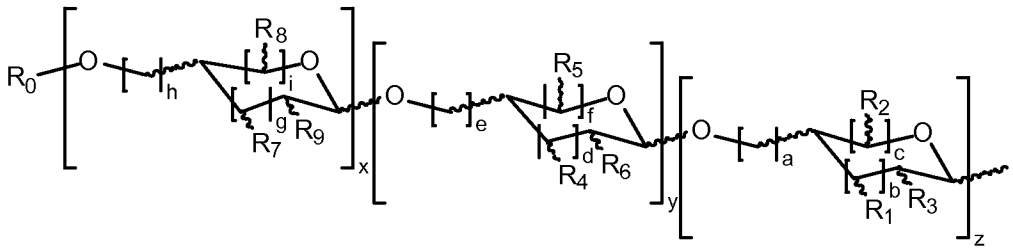
$R^{X1}$ is hydrogen, alkyl, acyl, aromatic, heteroaromatic, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), a nitrogen protecting group, an amino acid or a proctected amino acid;

$R^{X2}$ is $-OR^{X2a}$ or $-NR^{X2b}R^{X2c}$, wherein $R^{X2a}$ is hydrogen, alkyl, aromatic, heteroaromatic, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), a carboxylic acid protecting group, an amino acid or a proctected amino acid; and $R^{X2b}$ and $R^{X2c}$ are independently hydrogen, alkyl, aromatic, heteroaromatic, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), a nitrogen protecting group, an amino acid or a proctected amino acid.

2. **(Original)** The method of claim 1, wherein each occurrence of A, A1 and A2 is independently a pharmaceutically useful group or entity.

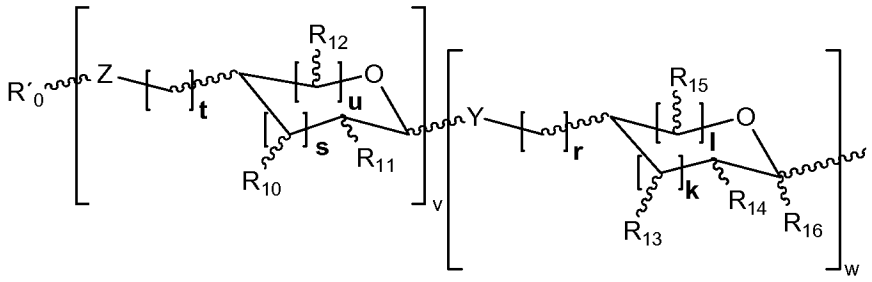
3. **(Original)** The method of claim 1, wherein each occurrence of A, A1 and A2 is independently a biomolecule, a small molecule, a macromolecule or a diagnostic label.

4. **(Original)** The method of claim 1, wherein each occurrence of A, A1 and A2 is independently a carbohydrate determinant having the structure:




wherein a, b, c, d, e, f, g, h, i, x, y and z are independently 0, 1, 2 or 3, with the proviso that the x, y and z bracketed structures represent furanose or pyranose moieties and the sum of b and c is 1 or 2, the sum of d and f is 1 or 2, and the sum of g and i is 1 or 2, and with the proviso that x, y and z are not simultaneously 0; wherein $R_0$ is hydrogen, a linear or branched chain alkyl, acyl, arylalkyl or aryl group; wherein each occurrence of $R_1$, $R_2$, $R_3$, $R_4$, $R_5$, $R_6$ , $R_7$, $R_8$ and

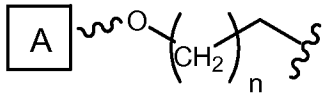
$R_9$ is independently hydrogen, OH, $OR^i$, $NHR^i$, $NHCOR^i$, F, $CH_2OH$, $CH_2OR^i$, a substituted or unsubstituted linear or branched chain alkyl, (mono-, di- or tri)hydroxyalkyl, (mono-, di- or tri)acyloxyalkyl, arylalkyl or aryl group; wherein each occurrence of $R^i$ is independently hydrogen, CHO, $COOR^{ii}$, or a substituted or unsubstituted linear or branched chain alkyl, acyl, arylalkyl or aryl group or a saccharide moiety having the structure:




wherein Y and Z are independently NH or O; wherein k, l, r, s, t, u, v and w are each independently 0, 1 or 2; with the proviso that the v and w bracketed structures represent furanose or pyranose moieties and the sum of l and k is 1 or 2, and the sum of s and u is 1 or 2, and with the proviso that v and w are not simultaneously 0; wherein $R'_0$ is hydrogen, a linear or branched chain alkyl, acyl, arylalkyl or aryl group; wherein each occurrence of $R_{10}$, $R_{11}$, $R_{12}$, $R_{13}$, $R_{14}$ and $R_{15}$ is independently hydrogen, OH, $OR^{iii}$, $NHR^{iii}$, $NHCOR^{iii}$, F, $CH_2OH$, $CH_2OR^{iii}$, or a substituted or unsubstituted linear or branched chain alkyl, (mono-, di- or tri)hydroxyalkyl, (mono-, di- or tri)acyloxyalkyl, arylalkyl or aryl group; wherein each occurrence of $R_{16}$ is hydrogen, COOH, $COOR^{ii}$, $CONHR^{ii}$, a substituted or unsubstituted linear or branched chain alkyl or aryl group; wherein each occurrence of $R^{iii}$ is hydrogen, CHO, $COOR^{iv}$, or a substituted or unsubstituted linear or branched chain alkyl, acyl, arylalkyl or aryl group; and wherein each occurrence of $R^{ii}$ and $R^{iv}$ are each independently H, or a substituted or unsubstituted linear or branched chain alkyl, arylalkyl or aryl group.

5. **(Original)** The method of claim 1, wherein each occurrence of $L^1$ is independently –O-$(CH_2)_n$-, wherein n is 0-9, or a glycoside-containing moiety.

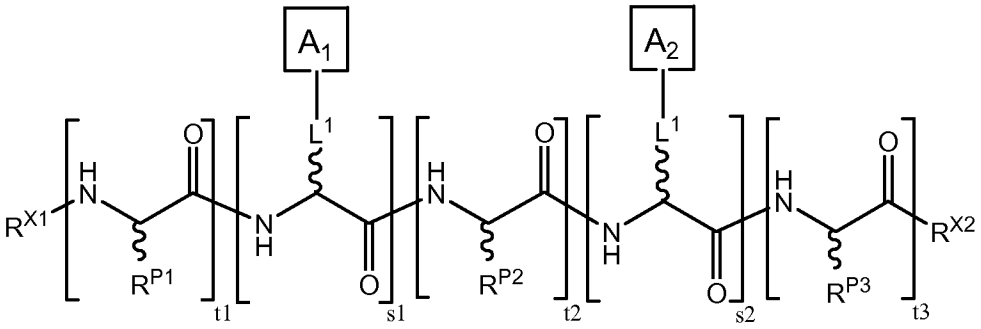
6. **(Original)** The method of claim 1, wherein $L^1$ is –O-$(CH_2)_n$-$CH_2$- and two or more non-adjacent amino acids is/are independently substituted with a moiety having the structure:



wherein each occurrence of n is independently 0-8.

7. **(Original)** The method of claim 1, wherein each occurrence of A, A1 and A2 is independently selected from the group consisting of Globo-H, fucosyl GM1, KH-1, glycophorin, STN, (2,3)ST, $Le^y$, $Le^x$, N3, Tn, 2,6-STn, Gb3 and TF.

8. **(Original)** The method of claim 1, wherein the polyfunctionalized peptide has the structure:



wherein s1 and s2 are independently an integer from 1 to about 20;

t1, t2 and t3 are each independently an integer;

$R^{X1}$ is hydrogen, alkyl, acyl, aromatic, heteroaromatic, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), a nitrogen protecting group, an amino acid or a proctected amino acid;

$R^{X2}$ is $-OR^{X2a}$ or $-NR^{X2b}R^{X2c}$, wherein $R^{X2a}$ is hydrogen, alkyl, aromatic, heteroaromatic, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), a carboxylic acid protecting group, an amino acid or a proctected amino acid; and $R^{X2b}$ and $R^{X2c}$ are independently hydrogen, alkyl, aromatic, heteroaromatic, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), a nitrogen protecting group, an amino acid or a proctected amino acid;

$R^{P1}$, $R^{P2}$ and $R^{P3}$ are independently H, alkyl, heteroalkyl, aromatic, heteroaromatic, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), or a natural or non-natural amino acid side chain;

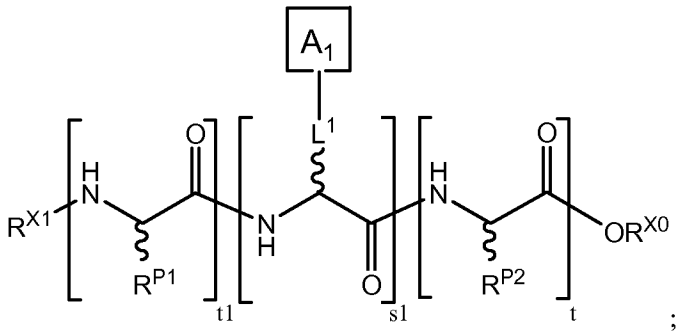
each occurrence of $L^1$ is independently a substituted or unsubstituted aliphatic or heteroaliphatic moiety;

$A_1$ and $A_2$ are each independently an aliphatic, heteroaliphatic, aromatic, heteroaromatic, aryl, heteroaryl or a pharmaceutically useful group or entity; and

at least one occurrence of the bracketed structure t2 is a cysteine residue or protected cysteine residue;

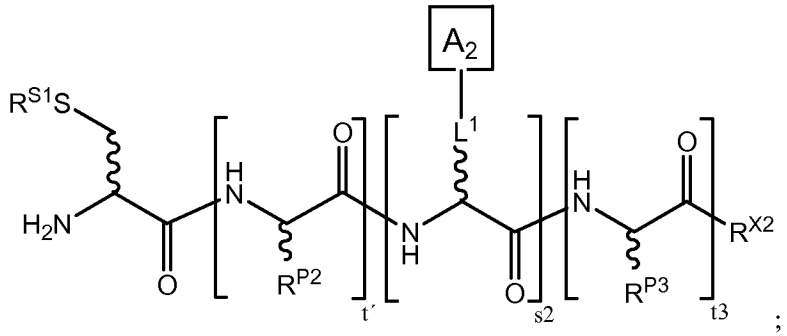
and the method comprises a step of:

reacting a peptide acyl donor having the structure:



;

with a peptide amine acceptor having the structure:

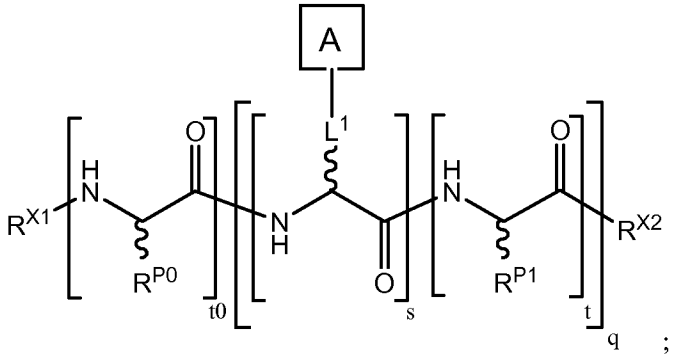


;

under suitable conditions to effect ligation;

wherein the sum t+t′ equals (t2)+1; $R^{S1}$ is a sulfide protecting group; and $R^{X0}$ is a group such that the moiety $-C(=O)OR^{X0}$ can be made to undergo ligation with the glycopeptide amine acceptor.

9. **(Original)** The method of claim 8, wherein the step of reacting the peptide acyl donor with the peptide amine acceptor is repeated a desired number of times, to prepare a polyfunctionalized peptide having the structure:




wherein $R^{X1}$ and $R^{X2}$ are as defined in claim 8;

each occurrence of A may be the same or different and may be as defined for $A_1$ and $A_2$ in claim 8;

each occurrence of $R^{P1}$ may be the same or different and may be as defined for $R^{P1}$ and $R^{P2}$ in claim 8;

q is an integer greater than or equal to 2;

each occurrence of s is independently an integer from 1 to about 20;

each occurrence of t is independently an integer;

t0 is an integer; and

each occurrence of $R^{P0}$ is independently H, alkyl, heteroalkyl, aromatic, heteroaromatic, aryl, heteroaryl, -alkyl(aryl), -alkyl(heteroaryl), or a natural or non-natural amino acid side chain.

10. **(Original)** The method of claim 9, wherein q is an integer between 2 and about 5.

11. **(Original)** The method of claim 9, wherein q is 2.

12. **(Original)** The method of claim 9, wherein the sum s+t is between about 2 and about 6.

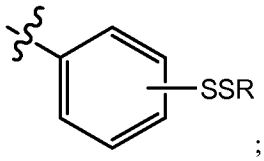
13. **(Original)** The method of claim 9, wherein t0 is an integer from 0 to about 20.

14. **(Original)** The method of claim 9, wherein $R^{X1}$ is hydrogen, Fmoc or Ac.

15. **(Original)** The method of claim 9, wherein $R^{X2}$ is $NH_2$.

16. **(Original)** The method of claim 9, wherein $R^{X0}$ is disulfide-substituted aryl moiety.

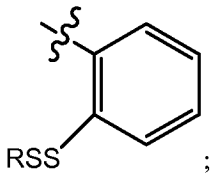
17. **(Original)** The method of claim 9, wherein $R^{X0}$ has the structure:




;

wherein R is an aliphatic, heteroaliphatic, aromatic or heteroaromatic moiety.

18. **(Original)** The method of claim 17, wherein $R^{X0}$ has the structure:



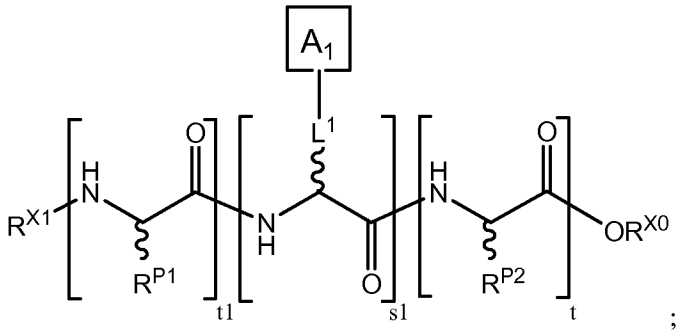

;

wherein R is lower alkyl.

19. **(Original)** The method of claim 18, wherein R is ethyl.

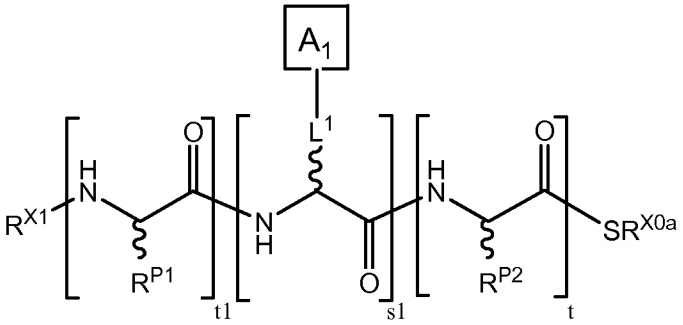
20. **(Original)** The method of claim 9, wherein $R^{S1}$ is -S*t*Bu.

21. **(Original)** The method of claim 9, wherein in the step of reacting the peptide acyl donor having the structure:




;

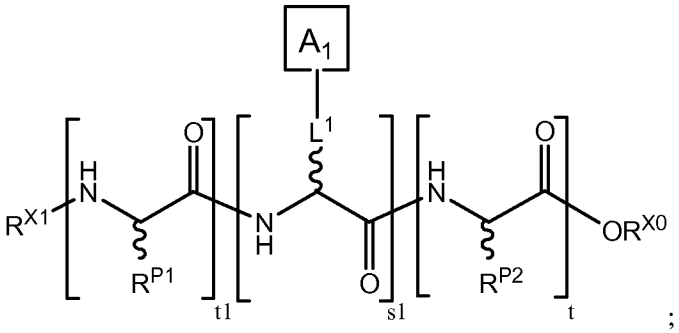
with the peptide amine acceptor under suitable conditions to effect ligation, an intermediate having the following structure is formed in situ:



wherein $R^{X0a}$ is an oxygen-substituted aryl moiety.

22. **(Original)** The method of claim 21, wherein the suitable conditions to effect ligation comprise MESNa.

23. **(Original)** The method of claim 9, wherein in the peptide acyl donor having the structure:



;

the amino acyl residue directly attached to $-OR^{X0}$ is phenylalanine.

24. **(Original)** The method of claim 1, wherein when at least one occurrence of A (or $A_1$ and/or $A_2$, as further defined for A) is a carbohydrate domain, some or all of carbohydrate domains are O-linked to the peptide backbone.

25. **(Original)** The method of claim 1, wherein when at least one occurrence of A (or $A_1$ and/or $A_2$, as further defined for A) is a carbohydrate domain, some or all of carbohydrate domains are N-linked to the peptide backbone.

26. **(Original)** The method of claim 1, wherein the polyfunctionalized peptide is symmetrical.

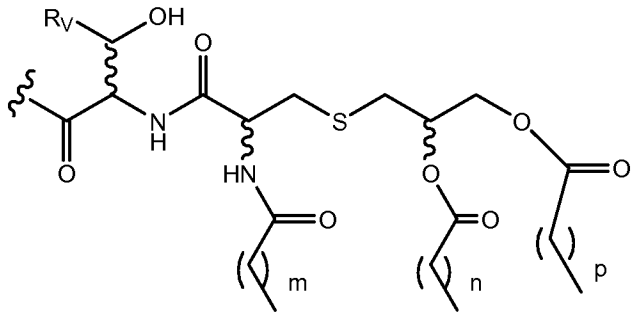
27. **(Original)** The method of claim 1, wherein the polyfunctionalized peptide is nonsymmetrical.

28. **(Original)** The method of claim 1, further comprising a step of conjugating the polyfunctionalized peptide to an immunogenic carrier.

29. **(Original)** The method of claim 28, wherein the carrier is a protein, a peptide or a lipid.

30. **(Original)** The method of claim 28, wherein the carrier is Bovine Serum Albumin (BSA), Keyhole Limpet Hemocyanin (KLH) or polylysine.

31. **(Original)** The method of claim 28, wherein the carrier is a lipid carrier having the structure:

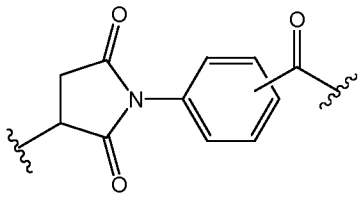



wherein m, n and p are each independently integers between about 8 and 20; and $R_V$ is hydrogen, substituted or unsubstituted linear or branched chain lower alkyl or substituted or unsubstituted phenyl.

32. **(Original)** The method of claim 31, wherein m′, n′ and p′ are each 14.

33. **(Original)** The method of claim 28, wherein the carrier is linked to the polyfunctionalized peptide through a crosslinker.

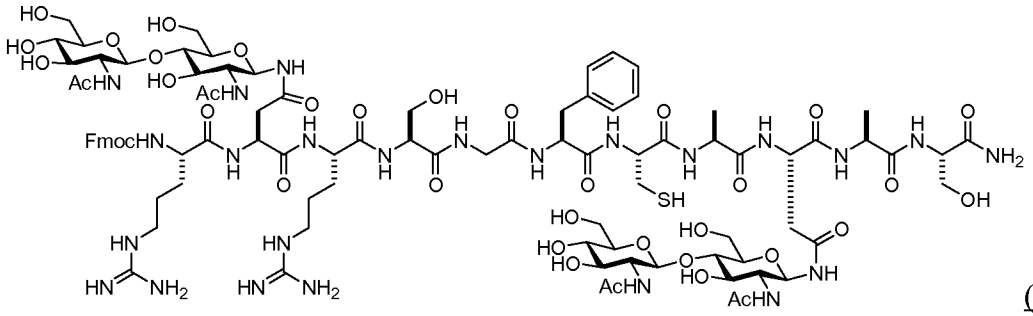
34. **(Original)** The method of claim 33, wherein the crosslinker is a fragment having the structure:



;

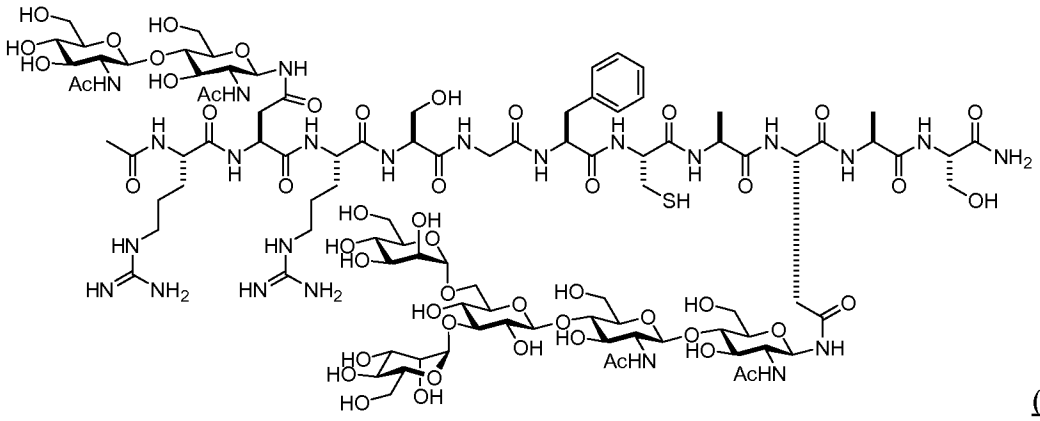
whereby said structure is generated upon conjugation of a maleimidobenzoic acid N-hydroxy succinimide ester with a suitable functionality on the polyfunctionalized peptide.

35. **(Currently Amended)** The method of claim 1, wherein the polyfunctionalized peptide has the structure:



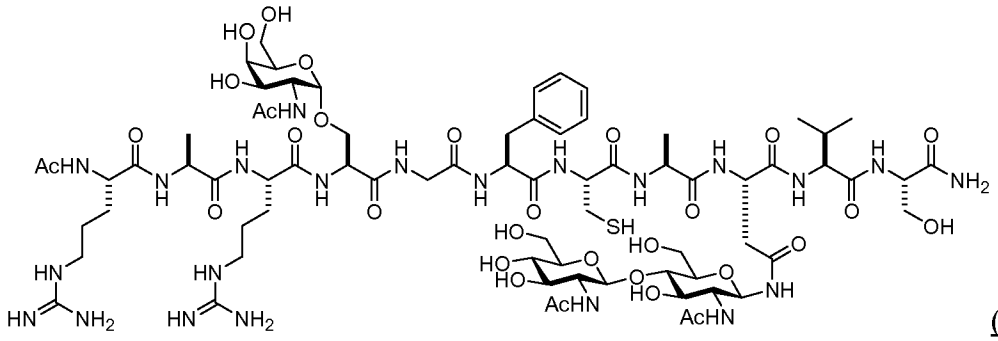
(SEQ ID NO: 6).

36. **(Currently Amended)** The method of claim 1, wherein the polyfunctionalized peptide has the structure:



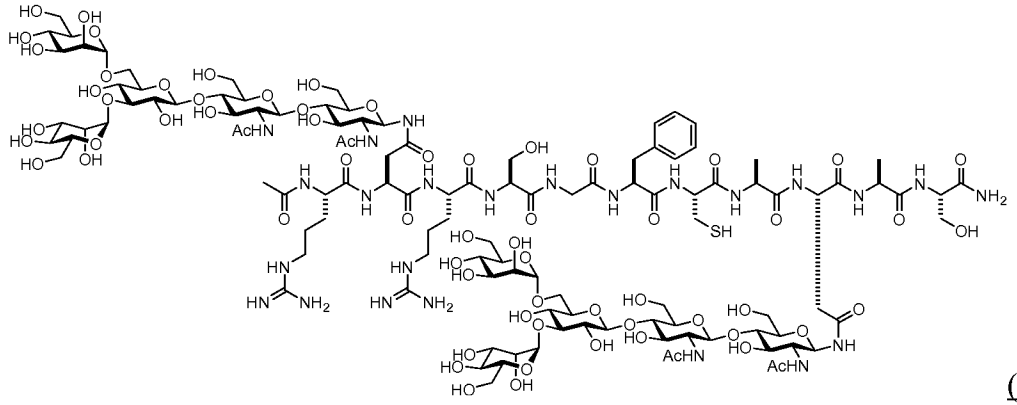
(SEQ ID NO: 6).

37. **(Currently Amended)** The method of claim 1, wherein the polyfunctionalized peptide has the structure:



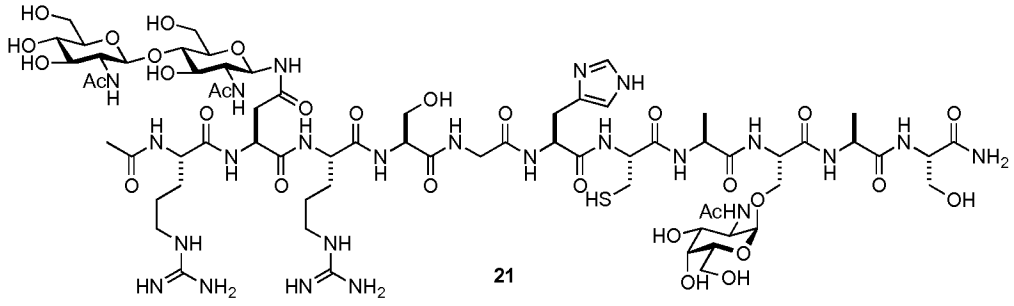
(SEQ ID NO: 7).

38. **(Currently Amended)** The method of claim 1, wherein the polyfunctionalized peptide has the structure:



(SEQ ID NO: 6).

39. **(Currently Amended)** The method of claim 1, wherein the polyfunctionalized peptide has the structure:



(SEQ ID NO: 8).

40. **(Cancelled)**